Phenolic-Rich Baccaurea angulata Modulates Inflammatory Biomarkers of Atherosclerosis

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Abstract

Purpose. Cardiovascular disease (CVD) is the leading and the most critical type of chronic disease. Atherosclerosis is the most common cause of CVD. Inflammation has been progressively acknowledged as a vital and central player in the pathophysiology of atherosclerosis. Baccaurea angulata is an underutilized fruit of the island of Borneo. It was obtained from Bau, Sarawak, Malaysia. In our previous studies, B. angulata did not only increase antioxidant enzyme activities, but also slowed the lipid peroxidation process in high-cholesterol-fed rabbits. It was hypothesized that B. angulata fruit would exert an anti-inflammatory effect. This study, therefore, aimed at evaluating and comparing the effects of three different B. angulata whole fruit (WF) juice doses on 11 serum inflammatory biomarkers of atherosclerosis. Methods. Thirty-five male New Zealand white rabbits were divided into seven groups (n = 5). Group CH was fed 1% cholesterol diet only, group C1 was fed 1% cholesterol diet and 0.5 ml/kg/day B. angulata WF juice, group C2 was fed 1% cholesterol diet and 1.0 ml/kg/day B. angulata WF juice, group C3 was fed 1% cholesterol diet and 1.5 ml/kg/day B. angulata WF juice, group N was fed standard pellet only, group N1 was fed standard pellet and 0.5 ml/kg/day B. angulata WF juice, and group N2 was fed standard pellet and 1.0 ml/kg/day B. angulata WF juice for 12 weeks. Results. The administration of the various juices reduced the concentrations of induced serum inflammatory biomarkers. Conclusion. This protective effect of B. angulata fruit against cardiovascular risk might be due to its polyphenol content.

Keywords

KeyWords Plus: E-KNOCKOUT MICE; CORONARY ATHEROSCLEROSIS; ENDOTHELIAL DYSFUNCTION; OXIDATIVE STRESS; IN-VIVO; FRUIT; EXTRACT; DIET; ANTIOXIDANT; EXPRESSION

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